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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,423	02/13/2004	C. Yvonne Thiel	T-6201 (538-54)	1117

7590 01/12/2007

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EXAMINER	
TOOMER, CEPHIA D	
ART UNIT	**PAPER NUMBER**
1714	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/779,423	THIEL ET AL.	
	Examiner	Art Unit	
	Cephia D. Toomer	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-35 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-35 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-15, 18 and 21-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nalesnik (US 4,919,683).

Nalesnik teaches a middle distillate fuel oil composition comprising a major amount of distillate fuel oil and a minor amount of an ethylene copolymer on which has been grafted an ethylenically unsaturated acid material which is then further derivatized with an aromatic polyamine such as, N-phenyl-phenylenediamine (see abstract; col. 1, lines 50-68; col. 3, lines 10-15). The copolymer may be prepared from ethylene and propylene and optionally a non-conjugated diene or triene (see col. 2, lines 45-65). The ethylene copolymer has a number average molecular weight from about 5,000 to 500,000 (see col. 3, lines 61-66).

The ethylenically unsaturated carboxylic acid material may be maleic anhydride (see col. 4, lines 4-14). The carboxylic acid material may be grafted onto the polymer

backbone by free radical induced grafting wherein a solvent contains 1 to 50 wt % of the ethylene polymer (see col. 4, lines 19-34). In Table 1 at col. 6, Nalesnik teaches a fuel oil composition containing 60 ptb of the copolymer compound. This teaching is within applicant's range of 50-5000 ppm. Nalesnik teaches the limitations of the claims other than the differences that are discussed below.

In the first aspect, Nalesnik differs from the claims in that he does not specifically teach a ratio of about 1.8 molecules of carboxylic acid functions per molecule of the copolymer. However, it would have been obvious to one of ordinary skill in the art to optimize the results and arrive at this ratio because Nalesnik teaches in the preparation of the compound that 1-50 wt% of the copolymer is used when the carboxylic acid function is grafted onto the copolymer. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch,* 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

In the second aspect, Nalesnik differs from the claims in that he does not specifically teach the ratio of amino-aromatic polyamine to copolymer graft material. However, It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the proportions of these components through routine experimentation for best results. As to optimization of results, a patent will not be

granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch,* 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Nalesnik fails to teach a diesel engine as required for Applicant's method claims. However, Nalesnik teaches that the additive is used in diesel fuels and this teaching suggests diesel engines. With respect to the method , it would be reasonable to expect that the fuel economy of the diesel engine would improve by use of the diesel fuel composition because Nalesnik teaches that the copolymer compound prevents sludge formation in the fuel and hence would improve the fuel economy of the diesel engine combusting such fuels.

4. Claims 16, 17, 19, 20, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nalesnik (US 4,919,683) as applied to claims above, and further in view of DeCanio (US 5,925,151).

Nalesnik has been discussed above. Nalesnik fails to teach the sulfur content of the diesel fuel or the use of additional additives. However, DeCanio teaches these differences.

DeCanio teaches a diesel fuel composition comprising a detergent additive wherein the fuel may be a low sulfur diesel fuel. The diesel fuel should contain less than 500 ppm sulfur (see abstract; col. 2, lines 56-61).

It would have been obvious to one of ordinary skill in the art to add conventional diesel additives because DeCanio teaches that the additives will perform their attendant function. With respect to the use of the low sulfur diesel fuel, the skilled artisan recognizes that U S environmental regulations dictate the use of low sulfur fuels.

5. Claims 1-6, 9-14, 17-24, 27-30 and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Esche (US 20040014612).

Esche teaches a multifunctional fuel additive that improves fuel economy comprising a hydridized, acylated olefin copolymer (see abstract). Preferred copolymers for use in the invention are copolymers of ethylene and one or more C_3 to C_{23} olefins (propylene) and optionally a nonconjugated diene (see paragraph 6). The number average molecular weight of the copolymer is between 700 and about 500,000 (see paragraph 10). An ethylenically unsaturated carboxylic acid such as maleic anhydride is grafted onto the polymer backbone (see paragraph 12). The carboxylic reactant is grafted onto the polymer backbone in amount from about 0.5 to about 6.0 molecules of carboxylic reactant per molecule of polymer backbone (see paragraph 14). Esche uses coupling agents such as aminomercaptotriazoles to derivatize the copolymer compound (see paragraphs 19 and 25). In preparing the coupled acylated olefin copolymers of Esche, the molar charge of coupling compound per mole of ethylenically unsaturated carboxylic reagent (maleic anhydride) can vary depending upon the choice of coupling compound (see paragraph 27). This teaching suggests that the proportion may be optimized.

Esche teaches that the hybridized olefin copolymer can be added directly to the fuel (diesel) in an amount from 0.01 to about 0.5 wit %. Esche teaches that conventional additives may be present in the fuel composition (see paragraphs 28, 29 and 30).

Esche differs from the claims in that he does not specifically teach the structure of the claimed aminomercaptotriazole. However, Esche's general teaching of aminomercaptotriazole suggests the claimed aminomercaptotriazole.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cephia D. Toomer whose telephone number is 571-272-1126. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Cephia D. Toomer
Primary Examiner
Art Unit 1714

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